

## ZINC OXIDE-BASED FINE PARTICLE, ITS PRODUCTION AND USE

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Inventor: TAKEDA MITSUO; UEDA YUMIKO  
Applicant: NIPPON CATALYTIC CHEM IND  
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### Abstract of JP8253317

**PURPOSE:** To obtain excellent heat ray shielding properties by using an additive element selected from among group IIIB and IVB metallic elements of the periodic table and Zn as metallic components and a coprecipitated substance of a metallic oxide manifesting the ZnO crystallinity at a specific ZnO content as a constituent component. **CONSTITUTION:** A Zn source such as ZnO powder and a metallic element source selected from among group IIIB and IV metallic elements of the periodic table are added to a mixed solvent of a monocarboxylic acid having  $\leq 200$  deg.C boiling point such as acetic acid with water. The temperature of the mixture solution is increased under stirring to dissolve both Zn and the metallic element sources to prepare a solution containing a metal such as Zn. The resultant solution containing the metal is then dropped into a heated solvent such as 2-butoxyethanol and the obtained mixture is heated to about 100-300 deg.C. An additive such as lauric acid is then added thereto. The prepared mixture is stirred to provide ZnO-based primary fine particles, having 0.001-0.1 $\mu$ m average particle diameter, comprising a coprecipitated metallic oxide substance containing 80-99.1% Zn and 0.1-20% other metals expressed in terms of the ratio of number of atoms and capable of manifesting the ZnO crystallinity. Furthermore, a lactic acid source is added to the solution containing the metal and the resultant mixture solution is heat-treated at  $\geq 100$  deg.C to afford secondary fine particles having 0.001-10 $\mu$ m average particle diameter.

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